

We Claim:

- 1 1. Cooked, buoyant waxy wheat comprising no more than about 10% amylose starch,  
2 characterized by being gelatinized throughout and storage stable in the absence of  
3 additives that inhibit development of rancidity.
- 1 2. Waxy wheat of claim 1, comprising a protein content of no more than about 14% by  
2 weight.
- 1 3. Waxy wheat of claim 1 in the form of integral whole kernels or ground whole  
2 kernels.
- 1 4. Waxy wheat of claim 1 wherein the waxy wheat is pearled.
- 1 5. Waxy wheat of claim 1 wherein the waxy wheat is about 1% to about 30% pearled.
- 1 6. Waxy wheat of claim 1, wherein the waxy wheat comprises a Wx-D1 null, Wx-A1  
2 or Wx-B1 null allele.
- 1 7. Waxy wheat of claim 1 wherein said cooked, buoyant waxy wheat is storage stable  
2 for at least about six months.
- 1 8. Waxy wheat of claim 1 wherein said cooked buoyant waxy wheat is storage stable  
2 for at least about 12 months.
- 1 9. Waxy wheat of claim 1, further comprising an edible coating.
- 1 10. Waxy wheat of claim 9, wherein the coating is selected from the group consisting of  
2 sucrose, dextrose, rice syrup, carnauba wax, polymeric fructose, corn syrup solids  
3 and oil.
- 1 11. Edible composition comprising the cooked, buoyant waxy wheat of claim 1.

- 1 12. Edible composition of claim 12 selected from the group consisting of ready to eat  
2 cereals, muesli, granola grain clusters, snack bars, biscuits, crackers, bread, cakes,  
3 muffins and pie crusts.
- 1 13. Process for preparing a cooked, buoyant, waxy wheat, comprising:  
2 (a) heating a waxy wheat having no more than about 10% amylose for  
3 about 5 to about 15 minutes at about 200°F (94°C) to 230°F (110°C)  
4 with moisture,  
5 (b) gelatinizing the heated waxy wheat throughout, and  
6 (c) cooling and drying the gelatinized waxy wheat,  
7 wherein said wholegrain waxy wheat product is storage stable for at least about six  
8 months in the absence of additives that inhibit development of rancidity.
- 1 14. Process of claim 13, wherein said waxy wheat is heated for about 5 to about 10  
2 minutes with steam and then tempering the waxy wheat for about 1 hour to about 2  
3 hour.
- 1 15. Process of claim 14, wherein said tempering is about 1 hour at ambient temperature.
- 1 16. Process of claim 14, wherein said tempering is for about 1 hour at about 160°F (71°C)  
2 to about 200°F (93°C).
- 1 17. Process of claim 13, wherein the waxy wheat in step (b) is heated for about 45  
2 minutes to about 90 minutes at 200°F (93°C) to about 350°F (177°C) to gelatinize the  
3 waxy wheat.
- 1 18. Process of claim 13, wherein the waxy wheat in step (b) is heated for about 1 hour  
2 at about 260°F (127°C).

- 1 19. Process of claim 13, further comprising separating the cooled waxy wheat in step (c)  
2 into separate kernels prior to drying.
- 1 20. Process of claim 19, further comprising toasting the separated dried kernels.
- 1 21. Process of claim 19, further comprising drying the separated kernels to a moisture  
2 content of 10 to 16% then heating the kernels to about 380°F (193°C) to about 700°F  
3 (371°C) for 15 to 25 seconds.
- 1 22. Process of claim 13, wherein flavorings are added to the waxy wheat prior to, during  
2 or after gelatinization.
- 1 23. Process of claim 13, wherein the waxy wheat comprises a protein content of about  
2 less than 14% by weight.
- 1 24. Process of claim 13, wherein the waxy wheat comprises Wx-D1 null, Wx-A1 or Wx-  
2 B1 null allele.
- 1 25. Process of claim 13, further comprising kneading the gelatinized and cooled waxy  
2 wheat of step (c) under low shear to form a dough.
- 1 26. Process of claim 25, further comprising shaping and drying the dough to a moisture  
2 content of 10 to 16%.
- 1 27. Process of claim 26, wherein further comprising toasting or puffing the shaped  
2 dough.
- 1 28. Process of claim 27, wherein the dried dough is puffed by heating the shaped dough  
2 to about 380°F (193°C) to about 700°F (371°C).

1 29. Process of claim 13, wherein the waxy wheat comprises a protein content of less than  
2 14% by weight of the grain.

1 30. Process of claim 13, comprising  
2 (a) heating the waxy wheat for 5 to 7 minutes at about 17 psi, then  
3 (b) tempering the heated waxy wheat for about 1 hour, then  
4 (c) cooking the tempered waxy wheat for about 1 hour to about 280°F (138°C)  
5 to gelatinize the waxy wheat, then  
6 (d) kneading the gelatinized waxy wheat under low shear to form a dough, then  
7 (e) shaping the dough and  
8 (f) then drying the dough to a moisture content of about 10% to 16%.

1 31. Process of claim 13, further comprising puffing or toasting the dried waxy wheat of  
2 step (c).

1 32. Process for preparing a cooked, buoyant, waxy wheat, comprising  
2 (a) heating a waxy wheat for about 5 to about 10 minutes with steam,  
3 (b) then tempering the heated waxy wheat for about 1 to about 2 hours,  
4 (c) cooking the tempered waxy wheat for about 45 minutes to about 90 minutes  
5 at 200°F (93°C) to about 350°F (177°C) to gelatinize the wholegrain waxy  
6 wheat throughout,  
7 (d) cooling and separating the gelatinized wholegrain waxy wheat, and then  
8 (e) drying the separated wholegrain waxy wheat to a moisture content of about  
9 10% to 16%.

1 33. Process of claim 32, further comprising puffing or toasting the wholegrain waxy  
2 wheat of step (e).

1 34. Cooked, buoyant, waxy wheat produced by the process of claim 13.

1 35. Cooked, buoyant, waxy wheat produced by the process of claim 32.

- 1 36. Process of claim 13, wherein the waxy wheat of step (a) is milled after heating and  
2 prior to gelatinizing to produce a ground meal.
- 1 37. Process of claim 36, further comprising shaping the gelatinized ground meal and  
2 drying to a moisture content of about 10% to 16%.
- 1 38. Process of claim 36, wherein the ground meal is gelatinized in a a rotary cooker or  
2 a cooker-extruder having a die face.
- 1 39. Process of claim 36, further comprising extruding the gelatinized ground meal  
2 and forming the extruded ground meal into a product of a desired shape.
- 1 40. Process of claim 39, further comprising toasting or puffing said shaped  
2 product.
- 1 41. Process of claim 39, wherein the shaped product is puffed by heating to about  
2 380°F (193°C) to about 700°F (371°C).
- 1 42. Process of claim 36, wherein the ground meal is gelatinized in a cooker-  
2 extruder and directly expanded.
- 1 43. Process of claim 13, further comprising milling the gelatinized barley of step  
2 (c) to produce a ground meal.
- 1 44. Process of claim 43, wherein said ground meal is formed into a product having  
2 a desired shape.

1 45. Process of claim 44, wherein the shaped product is a flake, shred, puff, nugget,  
2 strip or chip.

46. Process of claim 44, wherein the shaped product is toasted or puffed.

1 47. Process of claim 44, wherein the shaped product is dried to a moisture content  
2 of about 10% to 16%.

1 48. Process of claim 44, further comprising toasting or puffing the dried shaped  
2 product.

1 49. Process of claim 13, wherein the waxy wheat in step (c) is bumped, flaked,  
2 puffed or toasted.

1 50. Process of claim 13, wherein the waxy wheat is gelatinized in a cooker-  
2 extruder having a die face and is directly expanded at the die face.

1 51. Process of claim 50, wherein the directly expanded gelatinized waxy wheat is  
2 toasted.